PATENT APPLICATION

IN THE U.S. PATENT AND TRADEMARK OFFICE

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Applicant: Masaya OKITA

For: METHOD FOR DRIVING A NEMATIC LIQUID CRYSTAL

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APPELLANT'S BRIEF ON APPEAL

Sir:

This is an appeal from the decision of the Examiner dated March 31, 2010, finally rejecting Claims 3, 4, 7, 10, 15 and 20-35.

REAL PARTY IN INTEREST

Masaya OKITA and HDT Inc. are the assignees of the present application and the real parties in interest.

RELATED APPEALS AND INTERFERENCES

There are no related appeals and interferences to the present application.

STATUS OF CLAIMS

Claims 3, 4, 7, 10, 15 and 20-35 are pending and are the claims under consideration on appeal. Claims 1, 2, 5, 6, 8, 9, 11-14 and 16-19 have been canceled.

STATUS OF AMENDMENTS

No Amendment After Final Rejection has been submitted by the Applicant.

SUMMARY OF CLAIMED SUBJECT MATTER

Appellants' invention, as defined by independent Claim 20, is directed to a method for driving a nematic liquid crystal in a liquid crystal display device comprising a nematic liquid crystal (paragraph [0013] of the specification), two electrodes sandwiching the nematic liquid crystal (paragraph [0013] of the specification), two polarizing plates sandwiching the two electrodes (paragraph [0013] of the specification) and a matrix liquid crystal panel using a nematic liquid crystal (paragraph [0035] of the specification), consisting of the steps of applying a first voltage corresponding to image data (V1 in Fig. 1) to the liquid crystal during a first time period in a unit period (T1 in Fig. 1) (paragraphs [0014] and [0024] of the specification), and applying a second voltage that does not correspond to image data (-V1 in Fig. 1) to the liquid crystal during a second time period in the unit period (T1 in Fig. 1) (paragraphs [0015] and [0024] of the specification), wherein the unit period consists of the first time period and the second time period (paragraph [0024] of the specification), and the optical transmittance of the nematic liquid crystal changes from an initial level corresponding to the second voltage to a level corresponding to image data during the first time period and changes from the level corresponding to image data to the initial level corresponding to the second voltage during the second time period (paragraph [0025] of the specification), and the matrix liquid crystal panel is an active matrix liquid crystal panel (paragraph [0035] of the specification).

Appellants' invention, as defined by independent Claim 22, is directed to an image display method for a liquid crystal display device (paragraph [0013] of the specification)

including a matrix liquid crystal panel using a nematic liquid crystal (paragraph [0035] of the specification), consisting of the steps of applying a first absolute voltage corresponding to image data (V1 in Fig. 1) to the liquid crystal during a first time period in a unit period (T1 in Fig. 1) (paragraphs [0014] and [0024] of the specification), and applying a second absolute voltage having a predetermined potential and that does not correspond to image data (-V1 in Fig. 1) to the liquid crystal in a second time zone different from the first time zone in the unit period (T1 in Fig. 1) (paragraphs [0015] and [0024] of the specification), wherein the matrix liquid crystal panel is an active matrix liquid crystal panel (paragraph [0035] of the specification).

Appellants' invention, as defined by independent Claim 23, is directed to a method for driving a nematic liquid crystal in a liquid crystal display device that includes a nematic liquid crystal (paragraph [0013] of the specification), two electrodes confining the nematic liquid crystal (paragraph [0013] of the specification), a pair of polarizing plates sandwiching the electrodes (paragraph [0013] of the specification) and a matrix liquid crystal panel using a nematic liquid crystal (paragraph [0035] of the specification), consisting of the steps of applying a first absolute voltage corresponding to image data (V1 in Fig. 1) to the liquid crystal during a first time period in a unit period (T1 in Fig. 1) (paragraphs [0014] and [0024] of the specification), and applying a second absolute voltage not corresponding to image data (-V1 in Fig. 1) to the liquid crystal during a second separate predetermined time period in the unit period (T1 in Fig. 1) (paragraphs [0015] and [0024] of the specification), wherein the unit period includes a separate first input of the first absolute voltage, a second input of the second absolute voltage (paragraph [0024] of the specification) and the optical transmittance of the liquid crystal returns to or remains at an original level during the unit period (paragraph [0025] of the specification), and the

matrix liquid crystal panel is an active matrix liquid crystal panel (paragraph [0035] of the specification).

Appellants' invention, as defined by independent Claim 26, is directed to a method for driving a nematic liquid crystal in a liquid crystal display device comprising a nematic liquid crystal (paragraph [0013] of the specification), two electrodes sandwiching the nematic liquid crystal (paragraph [0013] of the specification), two polarizing plates sandwiching the two electrodes (paragraph [0013] of the specification) and a matrix liquid crystal panel using a nematic liquid crystal (paragraph [0035] of the specification), consisting of the steps of applying a first absolute voltage corresponding to image data (V1 in Fig. 1) to the liquid crystal during a first time period in a unit period (T1 in Fig. 1) (paragraphs [0014] and [0024] of the specification), and applying a second absolute voltage that does not correspond to image data (-V1 in Fig. 1) to the liquid crystal during a second time period in the unit period (T1 in Fig. 1) (paragraphs [0015] and [0024] of the specification), wherein the unit period consists of the first time period and the second time period (paragraph [0024] of the specification), and the optical transmittance of the nematic liquid crystal changes from an initial level corresponding to the second absolute voltage to a level corresponding to image data during the first time period and changes from a level corresponding to image data to an initial level corresponding to the second absolute voltage during the second time period (paragraph [0025] of the specification), and the first absolute voltage consists of a first positive voltage and a first negative voltage, the sum of the first positive voltage and the first negative voltage is zero volts in the unit period (paragraph [0029] of the specification), and the matrix liquid crystal panel is an active matrix liquid crystal panel (paragraph [0035] of the specification).

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The first ground of rejection to be reviewed on appeal is whether Claims 3, 4, 7, 10, 15 and 20-25 are unpatentable under 35 USC 103(a) over Hiroki et al in view of Mase et al and Takemura. The second ground of rejection for review on appeal is whether Claims 15, 22-24, 33 and 34 are unpatentable under 35 USC 103(a) over Koden. The third ground of rejection for review on appeal is whether Claims 3, 4, 7, 10, 20, 21, 25-32 and 35 are unpatentable under 35 USC 103(a) over Koden in view of Handschy et al.

ARGUMENT

The present invention provides a nematic liquid crystal driving method which increases the response speed of any conventional nematic liquid crystal in order to enable coloring by tricolor back-lighting and to ensure a higher performance in reproduction of moving images. The present invention is based on the knowledge of the inventor that the optical transmittance in a nematic liquid crystal can change very quickly in response to changes in applied voltages. The liquid can be driven at a much higher response speed by returning or maintaining the voltage across two electrodes in a predetermined value for a predetermined time period in predetermined intervals.

The two different voltages applied in the present invention consist of: 1) a first voltage applied across two electrodes in a first time period which is a time period other than the predetermined duration of time in each interval; and 2) a second voltage applied across two electrodes being returned to and maintained in a predetermined value in a second time period which is a predetermined duration of time in the interval. As shown in Figure 1 of the present application, each of the intervals of time consists of two time periods - the predetermined duration (the second time period) and the duration of time other than the predetermined duration (the first time period). During the predetermined

duration (the second time period), the second voltage of 0 V which is irrespective to image data is applied, while during the duration of time other than the predetermined duration (the first time period) the first voltage - V1 or 0 V depending upon the image data, as shown in Figure 1 - responsive to the image data is applied. Thus, the applied voltage is forcibly changed to or maintained in 0 V for the predetermined time period in each interval.

Figure 1 shows the applied voltages in the present invention. In each of the intervals, T1, T2, T4 and T6, the first applied voltage is V1 in response to the image data. In each of the intervals, T3 and T5, the first applied voltage in response to the image data is 0 V. Each of the intervals, T1-T6, the second voltage of 0 V is forcibly applied.

It is respectfully submitted that the prior art cited by the Examiner does not disclose the presently claimed invention.

REJECTION OF CLAIMS 3, 4, 7, 10, 15 AND 20-25
UNDER 35 USC 103(a) AS BEING UNPATENTABLE OVER
HIROKI ET AL IN VIEW OF MASE ET AL AND TAKEMURA

The invention as defined in Claim 20 is directed to a method for driving a nematic liquid crystal in a liquid crystal display device comprising a nematic liquid crystal, two electrodes sandwiching the nematic liquid crystal, two polarizing plates sandwiching the two electrodes and a matrix liquid crystal panel using a nematic liquid crystal, consisting of the steps of: (1) applying a first voltage corresponding to image data to the liquid crystal during a first time period in a unit period, and (2) applying a second voltage that does not correspond to image data to the liquid crystal during a second time period in the unit period, wherein the unit period consists of the first time period and the second time period, and the optical transmittance of the nematic liquid crystal changes from an initial level corresponding to the second voltage to a level corresponding

to image data during the first time period and changes from the level corresponding to image data to the initial level corresponding to the second voltage during the second time period, and the matrix liquid crystal panel is an active matrix liquid crystal panel.

As opposed to the presently claimed invention, the Hiroki et al reference is directed to an electro-optical device comprising a display drive system with a display timing related to the unit time t for writing-in a picture element and to the time F for writing-in one picture. A gradated display corresponding to the ratio of the division is obtained by time-sharing the signal during a write-in of time t without changing the time F. Referring to Figure 9 of this reference, the Examiner has alleged that the liquid crystal potential corresponds to the first absolute voltage of Claim 22 and that the liquid crystal potential equals $V_{DD} + V_{SS}$. However, Figure 9 of Hiroki only shows three levels of the liquid crystal potential which are specifically GND, V_{DD} and V_{SS}. As such, Hiroki et al does not show $V_{DD} + V_{SS}$.

With respect to the second absolute voltage of Claim 22, the Examiner has contended that Figure 9 of Hiroki shows, by reference to "Liquid Crystal Potential = electrical ground, GND" as being applied in a non-write-in time (= Frame - t). The second absolute voltage recited in Claim 22 is a fixed voltage because it has a potential as recited therein. In contrast thereto, in Figure 9 of Hiroki, the voltage applied in the non-write-in time varies with the line exemplified by GND for the first signal line, GND for the second signal line and V_{DD} for the third signal line. That is, the voltage applied in the "Frame - t" period in the Hiroki system in Figure 9 is variable. Therefore, the ILC potential of the pixels of different signal lines cannot be constant. As such, the disclosure of Hiroki et al clearly does not correspond to the presently claimed invention and the secondary references cited by the Examiner do not contain teachings that would motivate one of ordinary skill in the art to modify the Hiroki

et al reference in a manner that would yield the presently claimed invention.

The Mase et al reference is directed to an electro-optical device comprising a pair of first and second devices, which are provided in an optical path extending from a light source and a screen for outputting a picture image thereon. The first and second devices include a pair of first and second substrates, each having electrodes and leads formed thereon, which sandwich therebetween an electro-optical modulating layer and a means for orienting the liquid crystal composition at least in an initial stage. The light transmission factor of the second device changes with time rotationally to realize a tonal display, reduce the overall weight of the apparatus and improve the yield. However, like the previously discussed reference, this reference has no disclosure with respect to driving the nematic liquid crystal by steps consisting of applying a first voltage corresponding to image data to the nematic liquid crystal during a first time period in a unit period and applying a second voltage that does not correspond to the image data to the nematic liquid crystal during a second time period. Therefore, Mase et al adds nothing to the primary Hiroki et al reference.

The Takemura reference discloses an active matrix display device for suppressing a voltage variation due to off-operation of a gate pulse. This reference has been cited by the Examiner as disclosing that it was well known to replace a counter/opposing electrode offset voltage level with a zero/ground voltage level. However, like the previously discussed references, this reference has no teaching with respect to driving a liquid crystal display device using a nematic liquid crystal by a method consisting of the steps of applying a first voltage corresponding to image data to the liquid crystal during a first time period in a unit period and applying a second voltage that does not correspond to image data to the liquid crystal during a second time period in the unit period. Therefore, Takemura in combination with Mase and

Hiroki do not even present a showing of prima facie obviousness under 35 USC 103(a).

Independent Claims 22, 23 and 26 all require the same basic steps required in Claim 20. The method of Claim 22 consists of the steps of applying a first absolute voltage corresponding to image data to the liquid crystal during a first time period in a unit period and applying a second absolute voltage having a predetermined potential and that does not correspond to the image data to the liquid crystal during a second time period different from the first time period in the unit period.

The method of Claim 23 consists of applying a first absolute voltage corresponding to image data to the liquid crystal during a first time period in a unit period and applying a second absolute voltage that does not correspond to the image data to the liquid crystal during a second separate predetermined time period in the unit period.

The method of Claim 26 consists of the steps of applying a first absolute voltage corresponding to image data to the liquid crystal during a first time period in the unit period and applying a second absolute voltage that does not correspond to the image data to the liquid crystal during a second time period in the unit period.

For the same reasons advanced above for Claim 20, Claims 22, 23 and 26 are also believed to be patentably distinguishable over Hiroki and Mase and Takemura in combination.

REJECTION OF CLAIMS 15, 22-24, 33 AND 34 UNDER 35 USC 103(a) OVER KODEN

The Koden reference discloses a ferroelectric liquid crystal display device comprising a substrate of a plurality of scanning electrodes and a plurality of signal electrodes in the form of a matrix, a switching device formed at each intersecting point of the electrodes, a liquid crystal cell injected with a ferro-electric liquid crystal and a drive

controlling means which can apply a signal having a plurality opposite to that of the signal corresponding to a required display from the signal electrode in synchronization with that the signal is applied from the scanning electrode to turn the switching device ON, apply a signal corresponding to the required display from the signal device in synchronization with that the signal is applied again from the scanning electrode after a predetermined period of time to turn the switching device ON and apply a signal from the signal electrode so that the voltage applied to the liquid crystal may be zero in synchronization with that the signal is applied again from the scanning electrode after a predetermined period of time to turn the switching device ON.

Koden discloses in Figure 5 the voltage applied to a liquid crystal. The voltage consists of a negative value, a positive value and zero value. However, this reference does not apply the absolute voltage to the liquid crystal. Koden additionally does not disclose that the voltage corresponds to the image data. In column 2, lines 43-46, the Koden reference merely discloses that when a display at a certain pixel is not changed for a long period of time, <u>a voltage of the same polarity</u> is applied to the ferro-electric liquid crystal of the pixel. As such, the Koden reference uses both negative and positive voltages rather than the absolute voltage. As such, Claim 22 is clearly patentably distinguishable over this reference.

Claim 23 is directed to a method for driving a nematic liquid crystal in a liquid crystal display device that includes the nematic liquid crystal, two electrodes confining the nematic liquid crystal, a pair of polarizing plates sandwiching the electrodes and a matrix liquid crystal panel with the nematic liquid crystal, consisting of the steps of:

applying a <u>first absolute voltage corresponding to image data</u> to the nematic liquid crystal during a first time period in a unit period; and

applying a second absolute voltage not corresponding to the image data to the nematic liquid crystal during a second separate time period in the unit period,

wherein the unit period includes a separate first input of the first absolute voltage, a second input of the second absolute voltage and the optical transmittance of the nematic liquid crystal returns to or remains at an original level during the unit period and the matrix liquid crystal panel is an active matrix liquid crystal panel. (emphasis added)

As discussed above, Koden does not apply the absolute voltage to the liquid crystal, and does not teach that the voltage corresponds to the image data. Further, Koden does not disclose that the optical transmittance of the nematic liquid crystal returns to or remains at an original level during the unit period. In Figure 5, a change in the amount of transmitted light turns to the positive value from zero at 1/3 t_0, and remains at the positive value until the unit period. The change in amount of transmitted light returns to zero at 1/3 t_0 of next unit period.

In view of the above, Claim 23 is also believed to be patentably distinguishable over Koden.

Claims 15, 24, 33 and 34 depend upon what is believed to be allowable Claims 22 or 23, are believed allowable therewith, and include additional features which further distinguish over Koden. For example, Claim 15 recites, "the unit period is less than or equal to eight milliseconds." Koden discloses that the pulse width necessary for the switching is 200 µsec, but does not teach that the unit period is less than or equal to eight milliseconds.

REJECTION OF CLAIMS 3, 4, 7, 10, 20, 21, 25-32 AND 35 UNDER 35 USC 103(a) AS BEING UNPATENTABLE OVER KODEN IN VIEW OF HANDSCHY ET AL

Claim 20 is directed to a method for driving a nematic liquid crystal in a liquid crystal display device comprising the nematic liquid crystal, two electrodes sandwiching the nematic liquid crystal, two polarizing plates sandwiching the

two electrodes and a matrix liquid crystal panel with the nematic liquid crystal, consisting of the steps of:

applying a first voltage corresponding to image data to the nematic liquid crystal during a first time period in a unit period; and

applying a second voltage that does not correspond to the image data to the nematic liquid crystal during a second time period in the unit period,

wherein the unit period consists of the first time period and the second time period, and the <u>optical transmittance of the nematic liquid crystal changes from an initial level corresponding to the second voltage to a level corresponding to the image data during the first time period and changes from the level corresponding to the image data to the initial level corresponding to the second voltage during the second time period</u>, and the matrix liquid crystal panel is an active matrix liquid crystal panel. (emphasis added)

The Examiner admits Koden does not disclose that optical transmittance of the nematic liquid crystal changes from the level corresponding to the image data to the initial level corresponding to the second voltage during the second time period, and cites Handschy to cure this deficiency.

Handschy shows in Figure 8 the ON/OFF state of the pixel in time period. Figure 8 also shows the brightness for each subframe. As shown in Figure 8, the brightness increases in frame F1' and decreases in frame F2'. Thus, Handschy does not disclose that optical transmittance changes from an initial level corresponding to the second voltage to a level corresponding to the image data <u>during the first time period</u> and changes from the level corresponding to the image data to the initial level corresponding to the second voltage <u>during the second time period</u>. In addition, in Figure 8 of Handschy, the brightness changes depending on the subframes rather than on the time period. Moreover, the brightness level of Handschy does not correspond to the image data or to the voltage. The brightness level increases as the amount of light available for the subframe increases.

In view of the above, Claim 20 is believed to be patentably distinguishable over Koden and Handschy, alone or in combination with one another.

Claim 26 is directed to a method for driving a nematic liquid crystal in a liquid crystal display device comprising the nematic liquid crystal, two electrodes sandwiching the nematic liquid crystal, two polarizing plates sandwiching the two electrodes and a matrix liquid crystal panel with the nematic liquid crystal, consisting of the steps of:

applying a <u>first absolute voltage corresponding to image data</u> to the nematic liquid crystal during a first time period in a unit period; and

applying a <u>second absolute voltage that does not correspond to the image data</u> to the nematic liquid crystal during a second time period in the unit period,

wherein the unit period consists of the first time period and the second time period, and <u>the optical transmittance of the nematic liquid crystal changes from an initial level corresponding to the second absolute voltage to a level corresponding to the image data during the first time period and changes from a level corresponding to the image data to the initial level corresponding to the second absolute voltage during the second time period</u>, and

the first absolute voltage consists of a first positive voltage and a first negative voltage, the sum of the first positive voltage and the first negative voltage is zero volts in the unit period, and the matrix liquid crystal panel is an active matrix liquid crystal panel. (emphasis added)

As discussed above, both Koden and Handschy do not apply the <u>absolute voltage</u> to the liquid crystal, and do not teach that the voltage corresponds to the image data. Further, Koden and Handschy do not disclose that the optical transmittance of the nematic liquid crystal changes from an initial level corresponding to the second absolute voltage to a level corresponding to the image data during the first time period and changes from a level corresponding to the image

data to the initial level corresponding to the second absolute voltage during the second time period.

In view of the above, Claim 26 is also believed to be patentably distinguishable over Koden and Handschy, alone or in combination with one another.

Claims 3, 4, 7, 10, 21, 25, 27-32 and 35 depend upon what is believed to be allowable Claims 20 or 26, are believed allowable therewith, and include additional features which further distinguish over Koden or Handschy.

Claims 3 and 27 recite, "the second voltage applied in the second time period of the unit period erases an image on the panel during the second time period." Claims 4 and 28 recite, "erasure of the image displayed on the panel is effected by driving the nematic liquid crystal to display black on the panel." Claim 10 recites, "the voltage applied in the second time period of the unit period erases an image on the panel by darkening the TFT liquid crystal panel to black during the second time period." Koden and Handschy do not teach the erasure of the image.

CONCLUSION

For the reasons advanced above, it is respectfully submitted that the presently claimed invention clearly is patentably distinguishable over the prior art cited by the Examiner. Reversal of the Examiner's rejections of the currently presented claims is respectfully solicited.

Respectfully submitted,

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Encl: Claims Appendix
Evidence Appendix
Related Proceedings Appendix
Postal Card

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CLAIMS APPENDIX

3. The method according to Claim 20 wherein the second voltage applied in the second time period of the unit period erases an image on the panel during the second time period.

4. The method according to Claim 3 wherein erasure of the image displayed on the panel is effected by driving the liquid crystal to display black on the panel.

7. The method according to Claim 3 wherein the liquid crystal display device is normally black and the second voltage is zero volts.

10. The method according to Claim 21 wherein the voltage applied in the second time period of the unit period erases an image on the panel by darkening the TFT liquid crystal panel to substantially black during the second time period.

15. The method for driving a nematic liquid crystal according to Claim 23 wherein the unit period is less than or equal to eight milliseconds.

20. A method for driving a nematic liquid crystal in a liquid crystal display device comprising a nematic liquid crystal, two electrodes sandwiching the nematic liquid crystal, two polarizing plates sandwiching the two electrodes and a matrix liquid crystal panel using a nematic liquid crystal, consisting of the steps of:

applying a first voltage corresponding to image data to the liquid crystal during a first time period in a unit period; and

applying a second voltage that does not correspond to image data to the liquid crystal during a second time period in the unit period,

wherein the unit period consists of the first time period and the second time period, and the optical transmittance of the nematic liquid crystal changes from an initial level corresponding to the second voltage to a level corresponding to image data during the first time period and changes from the level corresponding to image data to the initial level corresponding to the second voltage during the second time period, and the matrix liquid crystal panel is an active matrix liquid crystal panel.

21. The method according to Claim 20 wherein the liquid crystal display device is a TFT liquid crystal display device.

22. An image display method for a liquid crystal display device including a matrix liquid crystal panel using a nematic liquid crystal, consisting of the steps of:

applying a first absolute voltage corresponding to image data to the liquid crystal during a first time period in a unit period; and

applying a second absolute voltage having a predetermined potential and that does not correspond to image data to the liquid crystal in a second time zone different from the first time zone in the unit period,

wherein the matrix liquid crystal panel is an active matrix liquid crystal panel.

23. A method for driving a nematic liquid crystal in a liquid crystal display device that includes a nematic liquid crystal, two electrodes confining the nematic liquid crystal, a pair of polarizing plates sandwiching the electrodes and a matrix liquid crystal panel using a nematic liquid crystal, consisting of the steps of:

applying a first absolute voltage corresponding to image data to the liquid crystal during a first time period in a unit period; and

applying a second absolute voltage not corresponding to image data to the liquid crystal during a second separate predetermined time period in the unit period,

wherein the unit period includes a separate first input of the first absolute voltage, a second input of the second absolute voltage and the optical transmittance of the liquid crystal returns to or remains at an original level during the unit period and the matrix liquid crystal panel is an active matrix liquid crystal panel.

24. The method according to Claim 23 wherein the first absolute voltage consists of a first positive voltage and a first negative voltage and the sum of the first positive voltage and the first negative voltage in the unit period is zero volts.

25. The method according to Claim 20 wherein the level corresponding to the second voltage is white or black.

26. A method for driving a nematic liquid crystal in a liquid crystal display device comprising a nematic liquid crystal, two electrodes sandwiching the nematic liquid crystal, two polarizing plates sandwiching the two electrodes and a matrix liquid crystal panel using a nematic liquid crystal, consisting of the steps of:

applying a first absolute voltage corresponding to image data to the liquid crystal during a first time period in a unit period; and

applying a second absolute voltage that does not correspond to image data to the liquid crystal during a second time period in the unit period,

wherein the unit period consists of the first time period and the second time period, and the optical transmittance of the nematic liquid crystal changes from an initial level corresponding to the second absolute voltage to a level corresponding to image data during the first time period and

changes from a level corresponding to image data to an initial level corresponding to the second absolute voltage during the second time period, and

the first absolute voltage consists of a first positive voltage and a first negative voltage, the sum of the first positive voltage and the first negative voltage is zero volts in the unit period, and the matrix liquid crystal panel is an active matrix liquid crystal panel.

27. The method according to Claim 26 wherein the second absolute voltage applied in the second time period of the unit period erases on image on the panel during the second time period.

28. The method according to Claim 26 wherein erasure of the image displayed on the panel is effected by driving the liquid crystal to display black on the panel.

29. The method according to Claim 26 wherein the liquid crystal display device is normally black and the second absolute voltage is zero volts.

30. The method according to Claim 26 wherein the liquid crystal display device is a TFT liquid crystal display device including a plurality of pixels.

31. The method according to Claim 26 wherein the level corresponding to the second absolute voltage is white or black.

32. The method according to Claim 20, wherein said nematic liquid crystal is a twisted nematic liquid crystal.

33. The method according to Claim 22, wherein said nematic liquid crystal is a twisted nematic liquid crystal.

34. The method according to Claim 23, wherein said nematic liquid crystal is a twisted nematic liquid crystal.

35. The method according to Claim 26, wherein said nematic liquid crystal is a twisted nematic liquid crystal.

EVIDENCE APPENDIX

There is no extrinsic evidence of record in the present application.

RELATED PROCEEDINGS APPENDIX

There are no related proceedings to the present application.